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ESTABLISHMENT FOR THE STUDY
OF
VOCAL PHYSIOLOGY:

FOR THE CORRECTION OF

Stammering, and other Defects of Utterance ;

AND FOR

PRACTICAL INSTRUCTION IN "VISIBLE SPEECH."

CONDUCTED BY

ALEXR. GRAHAM BELL,

MEMBER OF THE PHILOLOGICAL SOCIETY OF LONDON, ENGLAND.

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~~85 WEST NEWTON~~ STREET,
BOSTON, MASS.

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CARD.

MR. A. GRAHAM BELL gives instruction to stammerers, and to others with defects of speech, and lessons in articulation to deaf-mutes.

The general education of very young pupils will be carried on during the period of instruction.

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SUBJECTS OF INSTRUCTION.

VISIBLE SPEECH.

THE practical use of the system of visible speech is taught to the following classes of persons, to whom it is of especial value :—

I. — Philologists.

The system aids the study, comparison, and preservation of fast-disappearing dialects, and the universal tracing of the affinities of words. The publications of the Philological Society of London, England, already show several linguistic applications of visible speech,—treatises by A. J. Ellis, F.R.S. (on Early English Pronunciation), by Henry Sweet (on Icelandic), by J. A. H. Murray (on Lowland Scotch), &c.

II. — Missionaries.

Visible speech affords a means of writing hitherto unwritten languages and dialects, and hence is a most important help to missionary effort.

The civilization of the various tribes of North-American Indians in the Territories of the United States would be vastly facilitated by the introduction of visible speech as a means of instruction and communication.

It has been found practically that a missionary acquainted with this system masters a language much sooner than others. A letter from a student of visible speech in China is appended. (See page 10.)

III. — Students of Languages.

Foreigners can be taught the correct pronunciation of English by means of visible speech; and English speakers can acquire at home the sounds of foreign languages with vernacular accuracy.

IV. — *Teachers.*

Teachers require a thorough knowledge of the actions of the vocal organs in order to correct the peculiar or defective pronunciation possessed by many of their pupils. The requisite knowledge is easily obtained by means of the system of visible speech.

V. — *Teachers of the Deaf and Dumb.*

By the use of visible speech the deaf and dumb can be taught to speak distinctly and intelligibly.

The system is now employed in the following institutions for deaf-mutes.

1. Private School (conducted by Miss Hull), 102 Warwick Gardens, South Kensington, England.
2. Day School, 11 Pemberton Square, Boston, Mass.
3. Clarke Institution, Northampton, Mass.
4. National College for Deaf Mutes, Washington, D.C.
5. American Asylum, Hartford, Conn.
6. State Institution, Jacksonville, Ill.

The results obtained by the system may be ascertained by consulting the published reports of the above-mentioned institutions.

See also *The American Annals of the Deaf and Dumb*, vol. xvii. page 1.

The Annual Report of the School Committee of the City of Boston, 1871, pages 46, 205.

The Thirty-fifth Annual Report of the Massachusetts Board of Education, page 70.

VI. — *Parents of Deaf-and-Dumb or Stammering Children.*

VII. — *Teachers of the Blind.*

A special alphabet has been arranged for tactile reading, by means of which the blind may study the pronunciation of foreign languages, &c.

VIII. — *Stenographers.*

A universal "Line Alphabet" on the basis of visible speech enables stenographers to write any language perfectly.

ELOCUTION.

Instruction in the principles of expressive reading, and the modulation of the voice.

Vocal expression taught to deaf articulators and to teachers of the deaf and dumb.

 TEXT-BOOKS.

Visible Speech, — the Science of Universal Alphabetics.

Bell's Principles of Speech, and Dictionary of Sounds.

Bell's Elocutionary Manual.

Bell's Standard Elocutionist.

 TESTIMONIALS, &c.

From Prof. A. Melville Bell, Inventor of Visible Speech.

Mr. Alexander Graham Bell having been trained for his profession from his earliest youth, and having, besides, had extensive experience, — first as my assistant, and subsequently in his own practice, — is qualified, as few persons can be, for the successful treatment of cases of stammering, and other defects of speech.

He is thoroughly acquainted with visible speech and its applications; the department of teaching the deaf to articulate having been committed from the first to his management.

If he were not my son, I might speak more strongly, and refer to other qualifications. I content myself with testifying that he has given the most gratifying satisfaction in every engagement. I have perfect confidence in staking my professional reputation on the results of his teaching.

ALEX. MELVILLE BELL,

Lately Lecturer in University College, London, Eng.

TUTALO HEIGHTS, BRANTFORD, ONT., CAN., Oct. 11, 1872.

From Dr. Ira Allen.

[Copy of a letter received from Hon. J. D. Philbrick.]

CITY OF BOSTON, CITY HALL. June 19, 1871.

DR. ALLEN, *Chairman of Com. on the Deaf-Mute School.*

My dear Sir, — I wish to express very strongly my approval of the course of your committee in employing Mr. Graham Bell to teach visible speech in your school. The results of his instruction are more than satisfactory: they

are wonderful. His system must speedily revolutionize the teaching in all articulating deaf-mute schools.

The teachers in our school, who have devoted themselves to their work with so much zeal, must be greatly encouraged by the acquisition of this powerful instrumentality as an aid in their labors. Henceforth they will work with a far greater definiteness of aim, and with far greater satisfaction.

For my part, I wish Mr. Bell could be employed to teach his system in our training-school. In fact, if it were known to all our teachers, it would greatly add to their efficiency and success in teaching reading in all the grades, and especially in the primary classes.

Yours, very truly,

JOHN D. PHILBRICK.

P. S. — The exhibition at the deaf-mute school was gratifying in the highest degree; and I am greatly obliged to you for affording me an opportunity to express my satisfaction.

J. D. P.

A. GRAHAM BELL, Esq.

BOSTON, June 21, 1871.

Dear Sir, — The foregoing is a copy of a letter to me from Mr. Philbrick, the superintendent of schools in this city.

The sentiment and approbation is in unison with the unanimous feeling of the committee of the deaf-mute school, and eminent men interested in education.

On behalf of the committee, permit me to express their feeling of regret that we cannot secure your services for a longer time; and we cheerfully recommend you to the kind consideration of all who are interested in this most noble work of man.

You are at liberty to make use of this paper as you desire.

Very truly yours,

IRA ALLEN,

Chairman of Committee on Deaf-Mute School.

REPORT OF A COMMITTEE ON THE NEW METHOD OF INSTRUCTION FOR DEAF-MUTES, DECEMBER, 1871 (published in "The Boston Daily Advertiser").

On Wednesday last, an examination took place in the school for deaf-mutes, at 11 Pemberton Square, of several pupils, deaf and dumb, who had been for three months under the instruction of Mr. A. Graham Bell. The effects produced by this instruction are in the highest degree wonderful; indeed, almost miraculous. Several girls have been taught to utter distinctly all the sounds of the language; and one of them pronounced accurately words offered by gentlemen present, from a European and from an Oriental language, containing strange sounds not belonging to our language. Another, Miss Flagg, recited in a sweet and natural manner, with all the inflections and modulations that a well-taught hearing-girl could have given, a

comic quarrel between a husband and wife, about "Is it a thrush, or a starling?"

At the end of the examination, Hon. Mr. Philbrick, superintendent of the Boston schools, was requested by a unanimous vote to take measures to procure a hall sufficiently large to accommodate a much larger audience, and to arrange for a future meeting; and another committee was chosen to report the perfect success of Mr. Bell's methods, and to invite all persons, especially those interested in the marvellous powers of the human voice, and those who wish to see for themselves the original scientific methods by which he can bestow upon those from whom it has been withheld the power of communicating their thoughts and feelings by the use of the human voice divine; that every mother who has never heard her child speak may hope to hear it in a pleasant, natural voice.

Mr. Bell is the son of the gentleman in London, Prof. A. Melville Bell, who first, by unwearied experiments on the organs of speech, invented what he calls "Visible Speech,"—an invention which promises to give complete success to the art of teaching the deaf and dumb to speak. Mr. Bell began by giving a rapid account of the invention, and exhibited on the blackboard the characters of symbols devised, which are an imitation of the parts of the organs of speech used in the utterance of the several sounds. He then stated that the object of the experiments he had been making during the last three months had been to test the possibility of educating the mouths and voices of deaf-mutes. He introduced to us two young ladies who had during that time been under his instruction,—Miss Alice C. Jennings, daughter of the Rev. W. Jennings of Auburndale, and Miss Theresa Dudley, daughter of the Hon. L. J. Dudley of Northampton; and asked special attention to the latter, who is a congenital deaf-mute. She had been educated at home, at the institution at Hartford, Conn., and for four years under Miss Rogers, principal of the Clarke Institution, where she had been using her vocal organs.

In September, Superintendent Philbrick, Secretary White, Dr. Ira Allen, chairman of the Boston School for Mutes, and several other gentlemen, had examined the condition of Miss Dudley's articulation, that Miss Rogers might have full credit for the very wonderful work she had accomplished, and that the improvement due to the principles of "visible speech" might be justly appreciated.

The defects had been shown to be in sounds of *o*, the consonants *w*, *r*, *l*, and in all the double consonants, indistinctness, and difficulty of understanding her conversation or reading.

Mr. Bell went on to say, "Miss Dudley has been under my instruction for three months. The improvement manifest may be emphatically summed up in the one word, 'power.' She has obtained power over the instrument of speech,—such power that she can produce the elementary sounds of foreign languages, as well as those of English, by merely studying their symbols; that she can vary her voice in *quality* as well as pitch, sustain it on one level, or inflect it at will; and that she can appreciate in her own voice certain musical intervals.

"I have devoted principal attention to Miss Dudley's articulation. In Miss Jennings's case I have aimed at the cultivation of the voice, and the communication of elocutionary principles. Miss Dudley varies her voice entirely mechanically; but Miss Jennings can now associate a feeling with every inflection. The latter also possesses the mysterious power of appreciating relative pitch. Both of these young ladies are apparently totally deaf."

Mr. Bell then wrote on the board, in the symbols of "visible speech," sentences in English, in German, and in French, and some words in the Zulu language, containing Hottentot clicks never heard in our speech; all of which Miss Dudley read slowly, but with surprising correctness, and gave the clicks in a way which nobody else present could imitate.

She afterwards read, from her symbols of "visible speech," the Lord's Prayer, slowly, but very distinctly, with almost faultless articulation, and with apparently deep feeling.

Mr. Bell said that it will require long and patient practice of oral gymnastics before she is able to speak fluently; but he showed enough to prove that the end he is aiming at, *perfect and pleasing articulation*, is certain.

GEORGE B. EMERSON,	} <i>Committee.</i>
JOHN D. PHILBRICK,	
LEWIS B. MONROE,	
J. W. CHURCHILL,	

The pupils mentioned in the above Report have been examined by Dr. Clarence J. Blake, for the purpose of ascertaining whether any remnant of the sense of hearing existed that might account for their power of modulating the voice. The following is his Report.

REPORT BY DR. CLARENCE J. BLAKE,

Lecturer on Oology in Harvard University, and Aural Surgeon to the Massachusetts Charitable Eye and Ear Infirmary.

CASE I. — *Miss Alice C. Jennings*, aged twenty-one years, deaf-mute, well developed, and in good general health.

History. — At eight years of age had a severe attack of scarlet-fever; the inflammation of the mucous membrane of the pharynx and fauces being a marked symptom.

One week after the appearance of the rash and following symptoms, which indicated inflammation of the middle ear, a thick, purulent discharge occurred from both ears: this discharge continued for three months, and then ceased.

Three days after the commencement of the discharge, the hearing became entirely lost, and has not since returned. Following the attack of scarlet-fever, there was slight loss of power on the left side of the face, articulation being correspondingly impaired, while with the continuance of the deafness the speech was still further diminished, till the child finally became mute.

The history of the case points to an extension of the inflammation from the pharynx and Eustachian tubes to the middle ear, with a resultant purulent secretion, and subsequent perforation of the membrana tympani, followed,

about three days later, by an extension of the inflammation to the labyrinth, and resulting in total loss of perception of sound.

The subsequent examinations instituted for the purpose of testing the possibility of a remnant of perceptive power in the labyrinth were carefully conducted with the assistance of Mr. Bell; the instrument principally employed for the tests being the prismatic tuning-fork arranged with sliding clamps and a spring-hammer, for the purpose of varying the quality and intensity of the tones.

To obtain a greater range, three tuning-forks, A', a', and a'' respectively, were used.

In the two lower-toned tuning-forks, the clamps were arranged to give prominence to the dominant and fifth successively; and the tuning-forks were set in vibration by a blow from the spring-hammer, the head of which, when drawn to a distance of half an inch from the fork, struck it with a force of a pound avoirdupois.

Objective Examination. — Auricle and meatus on both sides perfectly normal.

Membrana tympani on both sides of a pearl-gray color, quite concave, and having a large cicatrice in the centre, marking the original perforation.

Eustachian tubes free, the air being readily forced into the middle ears.

The hearing was tested first by means of a watch (normal hearing-distance of which is five feet) placed successively over the ear, over the mastoid process, and in contact with the teeth.

There was no perception of the ticking of the watch.

The tuning-forks, arranged and set in vibration as above described, were then successively applied; the stem of each fork being placed, in turn, upon the mastoid process, in front of the ear, at the junction of the occipital and sagittal sutures at the apex, and finally held tightly between the teeth.

With none of these tests was there any perception of sound, although the vibration was plainly distinguished; and, the tuning-fork being placed in her hand, the patient described the sensation as identical with that produced by the vibrating tuning-fork held between the teeth, or placed in contact with the head.

To ascertain how far the sense of feeling might replace the sense of hearing in distinguishing various tones by a perception of the difference in the vibrations, the patient was blindfolded, and the large tuning-fork A', set at various tones within an octave above the fourth of the dominant tone, was held between the teeth. The patient was able to distinguish a difference, which she could not describe, however, other than by comparison to the varying sensations in the throat accompanying the modulation of the voice, and, though able to distinguish a change in the tone, could not tell whether any one tone was higher or lower than the one preceding it. In order to determine more conclusively the existence or absence of any perception of sound, the above tests with the tuning-fork were repeated under the influence of the galvanic current. The Stohrer zinc and carbon battery was the one employed. The tuning-fork A was made an electrode, and applied over

the mastoid process, and in front of the ear; the other electrode being held in the hand of the opposite side.

The current was gradually increased from two to four, six, and eight elements, without any perceptible effect other than causing a slight dizziness.

There was no perception of sound whatever.

CASE II. — *Miss E. Theresa B. Dudley*, aged seventeen years. Congenital deaf-mute, in good general health.

The history, so far as it could be obtained, gave no evidence of there ever having been any perception of sound.

The auricle and meatus on both sides perfectly normal, with the exception of a slight opacity. Eustachian tubes free.

The tests with the watch and the tuning-fork gave precisely the same results as in the preceding case, so far as the want of perception of sound is concerned.

Letter from a Missionary. — Visible Speech in the Mission-Field.

[From "The Toronto Daily Globe."]

The following letter, addressed to a gentleman in Paisley, Scotland, has been forwarded to Prof. A. Melville Bell, the author of "Visible Speech" (now resident at Tutelo Heights, Brantford, Ont.), and it is by him commended to the press on both sides of the Atlantic, that it may, perchance, be read by some whose interest in the subject may happily take a practical direction in connection with foreign missions. This interesting letter — though not intended for publication — directs timely attention to the *linguistic* applications of the invention, which the author will be happy to forward in any way within his power. The writer encloses the First Psalm in Chinese, showing that language to be as legible as English, when written in "visible speech."

CHEFOO, Dec. 8, 1871.

I have no doubt you will be glad to hear how your old pupil is progressing. . . . I cannot say much about the Chinese as a people yet; but soon I shall have ample opportunity, as I am about to take my first journey. But I am inclined to think well of them. My study of the language has been successful, and greatly aided by our new A B C. It has given me a great advantage over those who are learning beside me. Some here were quite sure they would leave me in the distance very quickly, with all my aids; but now they are compelled to own themselves far behind. I offered to study with them, and give them the advantage of the system; but they said they did not believe in 'quack,' and declined. Now, although they have had the advantage of being here two or three months before me, I can read three characters to their one; and they cannot pronounce their words correctly. What a glorious system it is! Such a blessing it could be made to China! Out of the male portion, only about five in the hundred can read, and much fewer still can write; and no woman can read, unless those that missionaries train, and it is a dreadful labor, and takes years and great expense. Just think what a hinderance this must be to the progress of the Church in China!

If the Bibles which are sold could be read by the women, how different it would be! It strikes me that in a few months, with the opportunity, I could not only teach hundreds round about our towns here, but also, by means of "visible speech," with the Gospels printed in it, perhaps sell as many copies of the Word. What an agent that would be to pull down the throne of Satan here! Even the Chinamen would look upon it as a godsend. I wish I had known Mr. Bell. I read, about a month ago, that, at Shanghai and Hong Kong, men who have devoted a long time to learn the language by the Roman alphabet were giving it up in despair, and something would have to be done. Could you not communicate with Mr. Bell on the subject? Now is the moment when his system would prove the greatest blessing in a vast number of ways; first, as I have mentioned, and, again, for the benefit of the merchants. The difficulty of learning the characters keeps merchants from acquiring the language, so that they have to trust to Chinamen to manage their business, who very commonly play the rogue, and sell their employers' business into the hands of Chinese merchants. And also, in one month, I undertake to supply a "visible speech" lesson-book, by which people at home could learn Chinese as easily as, indeed, more easily than with a teacher. That may seem too much to say; but it is a fact. The system provides every thing that could be desired; but we want the means of bringing it into use. Perhaps, if Mr. Bell were showing its great usefulness to our government, they would give aid in that respect. If the government knew what an assistance it would be to our interests in China, they would consent. Why, you have English on every hand here: it is spoken on board of Russian, Dutch, German, Siamese, and French vessels: blacks, whites, copper-colored, are all speaking English. The most of Chinamen round the coast are speaking it, — badly, of course, — but cannot read or write. See what the new alphabet could accomplish in enabling all these to read our language!

My teacher, from just looking over my notes when at dinner, or by little scraps taken home, can now read "visible speech," and also write some. But he is an old man, and very slow. Yet Mrs. W——, having seen his writing, and how well he could read it, is going to take a girls' school, and employ him to teach the system. If he had only been a little smarter, this might prove the beginning of a great national work.

W. H. M.

Letter from Alex. J. Ellis, F.R.S., published in "The Reader," Aug. 5, 1865.

In your number for Sept. 3, 1864, vol. iv. page 303, you gave insertion to a letter which I addressed to you concerning Mr. Melville Bell's new system of expressing speech-sounds by written symbols. I had then been favored with a private demonstration of its capabilities, which I had tested to the best of my power; and I was able to give a most satisfactory report to that extent. But I did not know the forms of the letters, or what each individual letter represented, or how they were to be combined, or what was the theory on which the extraordinary results I witnessed were based; and I was, therefore, obliged to qualify my opinion.

Mr. Melville Bell and his two sons have now been kind enough to devote several hours to explaining to me thoroughly the whole phonetic theory and plan of symbolization, and to read and exhibit on paper before me examples of its use sufficiently numerous to enable me to form a complete judgment of its powers and merits. I take the liberty, therefore, in the interest of science, to complete the information I gave you, so far as I am at liberty to do.

I may add, that I have no sort of connection, pecuniary or personal, with Mr. Melville Bell's scheme; that I have not been of the slightest assistance to him in its construction; and that persons might even rather suspect me of wishing not to forward a scheme which will, I believe and hope, thoroughly supersede one on which I have labored for many years, and expended much money.

My impressions in favor of Mr. Bell's scheme are so strong, that it is necessary for me to guard against any suspicion of being biassed in giving them expression.

As I write I have a full and distinct recollection of the labors of Amman (*Surdus Loquens*, 1692; *Dissertatio de Loquelâ*, 1700), De Kempelen (*Le Mécanisme de la Parole*, 1791), Johannes Müller (*Handbuch der Physiologie*, book iv., sec. 3, *Von der Stimme und Sprache*, German, 1834; French, by Jourdan and Littré, 1851), K. M. Rapp (*Versuch einer Physiologie der Sprache*, 4 vols. 1836-1841), C. R. Lepsius (*Standard Alphabet*, second English Edition, 1863), E. Brücke (*Grundzüge der Physiologie und Systematik der Sprachlaute*, 1856), S. S. Haldeman (*Analytic Orthography*, 1860), Max Muller (*Proposals for a Missionary Alphabet*, prefixed to his *Survey of Languages*, 1855; *Physiological Alphabet*, in his *Lectures on the Science of Language*, series ii. lecture 3, 1864). To these I may add my own works (*The Alphabet of Nature*, 1845; *The Essentials of Phonetics*, 1848; *Universal Writing and Printing*, 1856), together with a host of other works of more or less pretension and value, which it would be too long to enumerate. The above treatises contain, perhaps, a complete account of the present state of phonetical knowledge, so far as has been published.

Now, it is with this full and distinct recollection of works, which I have not only read, but studied, many of them with great care and attention, that I feel called upon to declare, that until Mr. Melville Bell unfolded to me his careful, elaborate, yet simple and complete system, I had no knowledge of alphabetics as a science. Much had been done. The mechanism and physiology of voice-sounds had been carefully and profoundly studied; excellent and elaborate attempts at analyzing speech-sounds had been made; various alphabets, local and universal, had been planned.

Contributions to the philosophy of alphabetics of great value, indispensable observations, and experiments, had been recorded, and many more are doubtless required; but alphabetics as a science, so far as I have been able to ascertain, — and I have looked for it far and wide, — did not exist. We did not know what elementary sounds or modifications of sound should be expressed; and the art of expressing such as had been pretty generally received was in a state of the greatest confusion.

I should be loath to say that Mr. Melville Bell's scientific system of alphabets admits of no improvement (it would be strange if it did not) ; but it has all the present appearance, on the one hand, of satisfying the wants of science, and, on the other, of fulfilling the demands of practice.

Mr. Melville Bell, in forming an alphabet, rejected all existing alphabets.

They were all formed on very imperfect knowledge, or superficial observation.

He applied himself directly to the organs of speech, with which his long practice as a corrector of the defects of utterance had rendered him familiar in all their relations.

The different forms of the glottis, the different modes of driving the air from the lungs and the passages it traversed, the various ways of altering or modifying the positions assumed by the organs of speech, first engaged his attention ; and the skill with which he has hit upon the general modifications is one of the most remarkable parts of his system, leading to a series of diacritic symbols of universal applicability, giving an almost unlimited power of expressing shades of sound and peculiarities of utterance, without loading the memory of the reader with an impossible variety of literal forms. Next came the consideration of the vowels ; and their treatment is at once complete and original. The size and shape of the aperture allowed for the passage of vocalized breath forms the basis of the arrangement ; and the relations of the apertures thus formed, with their modifications at either extremity, labial and pharyngeal, give a philosophic, and, indeed, musical scheme of the relations of the vowel-sounds.

The power thus obtained of showing by the very form of the symbol how to produce the vowel-sound, is really astonishing to those whose study of vowel-sounds has shown them the extreme difficulty of conceiving the method of uttering or imitating them when spoken.

So perfect is the present arrangement, that a simple name is given to each vowel heard, depending entirely on the shape and modification of the wind-passage, by which its power is conveyed with ease to those who have been properly instructed in the meaning of the words employed.

The numerous examples which Mr. Melville Bell and his sons gave me of the facility with which delicate distinctions in English pronunciation, — as, for example, between the vowels in *shun* and *mention*, *nest* and *goodness*, *principle*, *principal*, and *principality*, — and difficult Scotch and Irish dialectic vowels, could be symbolized and understood, were most interesting and satisfactory. No approach to such a perfection of analysis and symbolization of the vowels has yet fallen under my notice. Lastly came the consonants ; and here, too, although they have been generally much better understood than the vowels, the treatment is very original, and apparently exhaustive. I need only allude to the method of marking the position and shape of the tongue with respect to the palate, and the general modifications whereby the great variety of consonants thus formed is reduced to a rational and intelligible order. Nor must I omit to mention the mode of indicating glide-sounds, during which the organs change their position, and which, therefore, assume a kind of middle place between consonants and vowels.

As it would be impossible to give illustrations, the above general remarks must suffice as an outline of the theory.

To those who endeavor to pick up conceptions of speech-sounds from the confused accounts of ordinary writers (which are certainly sufficient to drive one to despair by their vagueness and figurative language, differing for almost each country and each traveller and grammarian), such a theory may seem terribly difficult; but, treated practically by one who thoroughly understands it, it will be found extremely easy. There is nothing vague, nothing figurative. Each symbol, and each part of a symbol, has a meaning, and contains a direction for utterance. *They are words of command, which any raw recruit can obey after proper drilling.*

When an Englishman talks of hard and soft *c*, he has a meaning, no doubt; but it is very different from what an Italian or Spaniard would understand. What does a Saxon mean by *hard* and *soft*, when he calls *p* hard, and *b* soft? Something very different. What are the *thick* and *thin*, *heavy* and *light* vowels or consonants of different nations? These words evidently do not tell any one what is to be done. No one could be trained by them. But they have served to pervert men's minds, and render them unable to describe or understand a real description of sound. A well-known Orientalist, the other day, was surprised that Mr. Bell could not write a sound from description, which the describer could not himself pronounce; and was dissatisfied by having his own utterance of another sound photographed, when he wished to hear the sound of his conception.

All this arises from extremely imperfect knowledge of certain landmarks of sound which Mr. Bell's system, when properly taught, at once establishes.

But it will not teach itself; owing, in part, to this prevailing ignorance, and in part to varieties of pronunciation affecting the key-words. If Mr. Bell were to publish his system as a book, it might be doomed to repose on the same shelf with the *Real Character* of Bishop Wilkins (which also contains an admirable analysis of speech-sounds). Mr. Bell can only teach it by transfusing it into living organisms which will give his written symbols notion and meaning.

Would the best book on military manœuvres, thrown on the world, make men mass together, and march and counter-march with precision and certainty? It could at most but incite a few minds to drill the multitude. But how inefficiently would they do it in comparison with those who had themselves been drilled and directed by the man who conceived the manœuvres! It is the same in the practice of music, drawing, sculpture, or any mechanical manipulation.

It cannot be described. It must be taught, shown, drilled into the pupil, to whom the book only serves to recall the master.

Hence, if the world will enjoy the benefit, the great scientific and practical benefit, of Mr. Melville Bell's discovery, it must place him in a position to communicate it to proper teachers, by whom it may be conveyed in an ever-widening circle.

It is not a case in which a man can do this for himself, without ample, in-

dependent means; and even then he would have little chance of success, if the importance of his mission did not receive a public recognition.

For this reason, Mr. Melville Bell appeals to the government of the country; and his appeal should be backed on the same principle which induced France to give Daguerre a pension for his discovery. The benefit is one for mankind, which cannot sufficiently reward the individual; and the benefit may therefore be lost by death, if not secured at once.

Allow me to say a few words respecting the mechanical arrangements of the alphabet. When I first turned my attention to inventing letters, I learned "to work at case and press," that I might know what would or what would not be practicable. Mr. Melville Bell has been, perhaps, too anxious to reduce the number of his symbols. He requires thirty-nine distinct types, of which many, having a perfectly square face (as an *m*), can be used in four positions (as *m u* \approx \approx), giving four distinct symbols.

This renders certain typographical arrangements necessary, that, I think, would be best avoided. Such a defect, if it be really a defect, is, however, a small matter of detail, which is easily arranged, and could be at once overcome by increasing the number of types.* They would even then not be too numerous.

The shapes of his letters are not founded on those of any existing alphabet, although a few of them accidentally recall some of our letters. They have direct reference to the positions of the organs of speech, and thus can be read at sight into the words of command which the organs have been drilled to obey. By a happy contrivance, the vowels have such a remarkably different appearance from the consonants, that they strike the eye at once, and hence determine the number of syllables of which the word consists.

Mr. Bell considers that the forms of the letters would be easy for the blind to recognize by touch; but of this I am no judge.† Their great peculiarity is, that each letter has its genus immediately marked upon it by its general contour, and its species by the detail of the contour; its varieties by diacritics of peculiar kinds.

Thus we see at once that the sounds of *t*, *d*, are of the same genus, and that the sounds of *p*, *b*, are also of one genus.

Moreover, we see that the specific distinction between *t*, *d*, is the same as the specific distinction between *p*, *b*, — a fact quite obscured in our ordinary letters, although also shown thus far (and somewhat farther, but by no means consistently) in Mr. I. Pitman's Phonography.

But again: to *t*, *d* are related *s*, *z*, and also Welsh *ll* and *l*; and these relations are again shown in type, the specific differences being the same as before, and shown in the same way. I can obviously only allude to the simplest and best understood relations; but this may be sufficient to show the

* The difficulty alluded to by Mr. Ellis has been obviated in the typography of the system as now arranged.

† A special alphabet, suited for tactile reading, is now offered to the blind.

principle. The specific difference between these pairs is the presence or absence of vocalized breath; and the specific mark of difference is derived from the *sign* for "the natural vowel," which is again derived from the form of the glottis necessary for vocalizing breath; and thus the whole system is bound together by a philosophical and scientific chain.

How the work of the missionary and philologist would be facilitated by the use of such an alphabet, which at once enables them to exhibit sounds that no existing alphabet can even vaguely imitate, and to show their relations to one another at a glance, and thus exhibit the relations of languages now forcibly concealed by differences of alphabetic character, or by different usage of the same alphabetic character, I need scarcely indicate. Leaving out of consideration, then, what may be naturally considered the first practical and scientific applications of such a mighty instrument as lies ready to be used when we call it from its obscurity, its immediate home-uses would be of great educational value. If the teachers in our schools were drilled in the use of such an alphabet, even only to the extent of European sounds, they could correct all mispronunciations; they could overcome, to a great extent, all natural defects of utterance, as stammering, stuttering, and the like; and they could prepare their pupils to pronounce foreign languages in a manner that would not so seriously offend the native's ear as our present "Stratford atte Bowe scole" fashion.

Moreover, without attempting to alter the established orthography of any country (leaving that to the wisdom of our descendants, which it would be hard to suppose less than that of our ancestors, who *did* change their orthography and alphabet), a sufficient number of books in Mr. Bell's alphabet (it is without a name: why not *le bel alphabet*?) might be published, being reprints of classical works readily obtained in the usual alphabet, to render the acquisition of the pronunciation of our own or any continental tongue easy and exact.

It is a simple statement of fact to say that no system of marking our pronunciation which has hitherto been adopted (not excepting Walker's, Smart's, Worcester's, or the phonetic systems adopted by myself, or, subsequently in America, and still more lately in the presumed improvements of Mr. I. Pitman) has succeeded in marking the extent of national peculiarities of English speech, to the accuracy possible in Mr. Bell's system.

I am afraid my language may seem exaggerated, and yet I have endeavored to moderate my tone, and have purposely abstained from giving full expression to the high satisfaction and pleasure which I have derived from my insight into the theory and practice of Mr. Melville Bell's "visible speech," as it is rightly named.

ALEX. J. ELLIS.

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